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ANCIENT LAKE OF TONTO

Its Greatest Depth Was One Thousand Feet
—How the Waters Cut a Channel
and Emptied the Lake.

The following is a reproduction of an article by James C. Goodwin on the ancient lake of Tonto which appeared some time ago in the University Monthly:

Lake Quiburis, an ancient Pliocene lake, as described by Professor W. P. Blake in the Arizona Monthly, is of scientific interest; a story from geology; a description of the former condition of a portion of southern Arizona.

The nearly land-locked estuary, which was open to the sea to the north was elevated some four thousand feet by a great epeirogenic uplift and changed into what is now known as the San Pedro valley. At this time and during the late periods of the territory nearly all of the mountain ranges received an addition of many thousands of feet to their height, and hundreds of thousands of square miles of land was elevated above the ocean.

At the beginning of the tertiary era there was no Salt or Gila rivers. At the close of the era, mountains had been formed by the epeirogenic uplift and igneous eruptions, water shedding from these mountains filled many deep depressions, making chains of lakes that then extended along the river valleys from their sources to where the rivers now unite.

If nature planned the river systems of Arizona, time has completed that mighty task and today not a lake exists; but dry basins, small valleys and deep canyons. Their cutting through mountains teaches us the stupendous power of water as a mechanical agent.

The largest and most interesting of any of these dry lakes I have ever seen is Tonto basin. It is not only interesting from a geological standpoint, but economically as well, for this is one of the many places that the people of Salt River valley hope again to see turned into a lake or a reservoir. They can hope to see it as it was at the end of the tertiary era as at that time a mountain barrier extended from the north along the Silver King range of mountains to the Mazatzal, or Four Peaks. Before the upheaval of this mountain, a great trachyte flow had covered the country for many square miles, and to the depth of from 500 to 1,000 feet. In their formation the Silver King mountains crossed this trachyte flow diagonally, leaving it altogether at the Tonto dam site at the north end. That part of the flow lying to the west is now known as Superstition mountain.

The top of this monocline is covered from 500 to 1,000 feet deep with trachyte, and underneath this lies 500 feet or more of limestone and below the limestone many feet of quartzite, all resting on a basic diorite. Twenty miles north of Tonto dam-site the conditions are nearly the same; a great monocline dipping to the east, but without the trachyte capping. In addition you find a conglomerate or pudding-stone stratum from ten to fifteen feet thick underlying the quartzite and resting on the diorite.

Since the upheaval of the Silver King mountain the Salt river has cut

a canyon about 1,000 feet deep, and this canyon has drained the ancient lake of Tonto.

Tonto basin, as an ancient lake, then as now, was bordered on the west by the Four Peaks or Mazatzal range of mountains; on the east by the Sierra Anches mountains; on the north by a low range of slate mountains, and on the south by dikes and many parallel ranges of mountains. The country adjacent to the Tonto basin abounded in many small lakes, but they have all been drained by the uplift and erosion.

After these lakes had been filled with water, the excess began to flow over into and fill this great basin of Tonto. Thus began the formation of many creeks that now flow into the basin. The largest and longest of these discharges flowed from the east and since that time it has cut through many deep barriers, turning many small lakes into basins, and is now known as Salt river. The great lake as well as other smaller ones in this part of Arizona, received a great abundance of debris-forming lacustrine deposits, the washings from newly made mountain ranges. These sediments may be seen in horizontal beds of great thickness extending far up the sides of the bordering mountains.

At the end of the ancient lake, where Salt river enters through a box canyon from the east can be seen horizontal beds of unconsolidated clays, sands and gravels over five hundred feet in thickness. Time has cut deep arroyas through this deposit leaving long ridges, extending from near Salt river to the summit of the low mountains to the east and south. Going from Salt river to Globe today you pass over one of these long ridges.

This Lake Tonto was in the form of a right angle, one side extending northward, up what is now known as Tonto creek for a distance of about 24 miles and varied in width from twelve to fifteen miles; the side extended eastward, up what is now Salt river, and had about the same length and depth as the northern arm.

The greatest depth of this lake was about 1,000 feet. After it had been filled with water it overflowed the Silver King mountain barrier and began to cut a channel westward. At that time the channel of Salt river was a thousand feet higher than it is now. A few miles below this barrier a trachyte flow had covered the country hundreds of feet thick for a distance of from twenty to thirty miles. The river has cut deep canyons into this flow.

I have entered the canyon of Salt river at the mouth of Tonto creek riding down through the various canyons and coming out near the mouth of the Verde river. In the whole distance not a fall or obstruction is in the way to impede or hinder the flow of water.

There is one part of this canyon which a horseman cannot leave for a distance of fifteen miles, the walls are so steep.

There are many beautiful and awe-inspiring sights to be seen on this trip, but it is dangerous, as there are places for a half a mile or more where the walls stand almost perpendicular on either side, and the water washes against these walls, so in case of floods escape would be impossible. In some of these places you will have to swim your horse down the river. A trip only can be made after the river has been low for a long time and many of the dangerous places filled with sand and sediment.

AGAINST STATEHOOD

The Senate Committee Report the Territories of Arizona and New Mexico as Being Unfit for Statehood.

Senator Beveridge, chairman of the senate committee on territories, Monday presented the report of the majority of the committee against the omnibus bill for the admission of Oklahoma, Arizona and Mexico, as states, and in support of the substitute bill reported by the committee for the admission of one state to embrace the area covered by the territories of Oklahoma and Indian Territory. The report discusses at some length the abstract question of the necessary qualifications for statehood, and then takes up the preparedness of the territories under each of the requisites specified. Accepting the unit of representation rule, which under the census of 1900 is 194,182, it is found that New Mexico, with 195,310 people would come in, but that Arizona would fall considerably short of the requirement. The committee lays down the general rule that while no new state should necessarily be "as large in population as any existing state, it is contended that it should be large enough to bear some fair proportion to the population of the rest of the republic," and it is declared that it would be well if the rule could be adopted that any new state should have a population equal to the average population of the rest of the states. This rule would require a population for any new proposed state, at the present time, of 1,350,000.

Referring specifically to conditions found by the sub-committee to exist in New Mexico, it is asserted that the courts of the justices of the peace are practically all conducted in Spanish, and that interpreters are necessary in other courts, as they are in the legislature, in political conventions, even in convention speeches. It is further asserted that while both Spanish and English are taught in the schools, the school children generally converse among themselves in Spanish, and that when the children finish their school career their tendency is to relapse into Spanish as the language of their daily life. It is stated that many jurymen sign their mark. The committee admits that there are many excellent people among the Mexicans, and say that when the territory becomes more Americanized, no one will object to statehood for this territory.

Of the so-called Americans, it is said that some of them "are not nearly so good citizens in conduct or in the understanding of our institutions as the Mexican element." Such are the "riff-raff," to use the expression of United States Judge Mills, who follow the introduction of railroads and such other elements as are always seen in any country's extending frontier. The report says that many people of the territory are opposed to admission, but intimates broadly that conditions make them fearful to express their sentiments.

Speaking of Arizona, it is said that the educational progress of the Territory has been fair, and there is a large percentage of refined people who have been attracted by the climate and the opportunities for adventure and enter-

prise. But it is stated that while these elements are important and invaluable to the Territory, and while their influence is altogether for good and will steadily grow, it cannot be truthfully said that at the present time they are not in sufficient number to dominate the mass of the inhabitants of the Territory. This is proved by the fact that saloons and gambling establishments are by the statutes of the Territory permitted openly to run by night and by day, Sunday as well as weekdays, and attempts to repeal this law have been futile. The report then declares that "even were all the people of the Territory of the admirable class above described, they would be far too few to justify statehood."

The resources and development of the country also are declared to be too limited to entitle the Territory to statehood.

Replying to the contention of the people of New Mexico and Arizona, that development had been retarded because of the lack of statehood, the committee points out that Oklahoma has been developed without statehood and points out:

"The Indian Territory, even with no form of government at all, has nevertheless attracted hundreds of thousands of American citizens from the other states of the union, who have opened its mines, worked its fields, and built up towns which astonish the observers and confound even the most confident believer in the energy of the American people, when the untoward conditions of the Indian Territory are considered."

The committee says the two Territories of Oklahoma and Indian Territory have a combined population of about a million people. Of the people of Indian Territory, only 86,000 are Indians, and attention is called to the fact that many of the people of New Mexico and Arizona, while called Mexican, are descendants of Indians, as well as of Mexicans and Spaniards.

Contending for its union of Oklahoma and Indian Territory, the report says that Oklahoma is too contracted in area for statehood alone, and that "nature, commerce and all human conditions have decreed that they should be united."

In conclusion, the committee says that "if it is a mistake not to admit New Mexico and Arizona at the present time, it is a mistake which can be remedied by any future congress. If it is a mistake to admit them and that mistake is consummated, it never can be undone."

Senator Quay presented an individual report in favor of the omnibus statehood bill.

The statehood bill will come up again in the senate next Monday and there will be lively times from that on until the final disposition of the bill. Senator Quay's minority report was a very strong argument for the admission of the territories, and he is confident that he will win the day. The majority report is a libel upon the people of New Mexico and Arizona.

Former Governor N. O. Murphy has gone to Washington to work for statehood for Arizona. The governor can do much in aiding the cause of statehood, and he is among the few who are willing to lay aside private business for the advancement of Arizona.